U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I

OFFICE OF SITE REMEDIATION AND RESTORATION

FIVE-YEAR REVIEW (TYPE I-A)

W. R. GRACE (ACTON PLANT) SUPERFUND SITE
ACTON, MASSACHUSETTS

SEPTEMBER 1999

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I. INTRODUCTION

A. PURPOSE

EPA Region I conducted this five year review pursuant to CERCLA Section 122(a), NCP Section 300.400(f)(4)(ii), and OSWER Directives 9355.7-02 (May 23, 1991) and 9355.7-02A (July 26, 1994) and OSWER Directives 9355.7-03A (December 21, 1995). The purpose of the five-year review is to ensure that a remedial action remains protective of public health and the environment and is functioning as designed. This document will become part of the Site File. A Type I-A five year review is appropriate for this Site because there is an ongoing response. This is the first five year review for this Site. The objective of this Review is to evaluate the Sites three operable units, OU1 OU2 and OU3.

B. SITE BACKGROUND/CHARACTERISTICS

The W.R. Grace (Grace) Site is located on approximately 200 acres of land in Acton, Massachusetts (Figure 1). The Site is partially bordered to the north by Fort Pond Brook, to the east and southeast by the Assabet River, to the south by industrial parks and to the northwest by residential housing.

Owned by W.R. Grace since 1954, the Site was used for industrial purposes for over one hundred years. Grace used the site in the production of concrete admixtures, paper and plastic separators for automobile batteries, container sealing compounds, and latex products. Effluent process waters from these operations flowed into four different unlined lagoons, referred to as the Primary, Secondary, North, Emergency Lagoons. Solid and hazardous wastes generated by these operations were deposited into an on-site landfill, referred to as the Industrial Landfill. Other waste receiving areas on the site are referred to as: the Blowdown Pit, the Boiler Lagoon, the Battery Separator Lagoons, and the Tank Car Area. Figure 2 shows the locations of all of these waste areas.

Groundwater contamination, detected in two municipal water supply wells, the Assabet wells, in 1978 prompted a series of investigations which found groundwater contamination. The primary contaminants of concern (COC) throughout the Site were: vinyledine chloride (VDC), vinyl chloride, ethylbenzene, formaldehyde, metals, and phthalates.

II. DISCUSSION OF REMEDIAL OBJECTIVES

As documented in the Record of Decision (ROD), dated September 29, 1989, the Site cleanup was organized into three Operable Units (OU), a description of which follows:

OU I: Disposal areas and surficial contamination areas at the Site.

OU II: Residual contamination in disposal areas at the site following implementation of OU One

OU III: Contaminated groundwater and the establishment of groundwater target cleanup goals.

A. REMEDIAL OBJECTIVES FOR OU I

For more detailed information of OU I remedial activities, see the Remedial Action Report For Operable Unit One, which was prepared by Foster Wheeler Environmental Corporation and is dated September 1997.

The goal of the selected remedy was to protect the drinking water aquifer by minimizing further contamination of the groundwater and surface water and to eliminate the threats posed by direct contact with or ingestion of contaminants in soils and waste sludges at the Site. The objective of the remedy was to control the sources of contamination on the Site by excavating and stabilizing contaminated sludges and excavating contaminated soils from the waste disposal areas. The VFL Technology Corporation stabilization process consisted of mixing contaminated soils and sludges with quicklime, flyash, and portland cement. The stabilized material was placed onto the Industrial Landfill and then capped to prevent further transport of contamination to groundwater.

The main components of the remedy as described in the Record of Decision (ROD) consisted of the following: (The following text is paraphrased from the ROD, changes from this description that were implemented in the field are described in Section 4 of the Remedial Action Report For Operable Unit One, which was prepared by Foster Wheeler Environmental Corporation and is dated September 1997).

- **Other Waste Areas**

The contents of the Battery Separator Lagoons (BSLs), Boiler Lagoon (BL), and the Tank Car Area (TCA) were excavated to a depth of at least five feet. Additional excavation greater than five feet in depth was performed until the soil cleanup goals (see page 30 of the 1989 ROD) were met. These materials were then placed on the Landfill. The contaminant level of all excavated materials from these areas was analyzed prior to placement on the landfill. If unexpected levels of contaminants were detected, that could present implementation problems or impact the effectiveness of the landfill remedy, then those materials were be stabilized prior to placement on the landfill or were disposed of off-site. Post excavation sampling and analysis was conducted to ensure that Soil Cleanup Goals as specified on page 30 of the ROD were attained.

- **Primary Lagoon, Secondary Lagoon, Emergency Lagoon, North Lagoon, Blowdown Pit and Acid Pit**

Sludges and at least two feet of soil in each of the Primary, Secondary and Emergency lagoons were excavated, stabilized using the VFL process and placed on the Industrial Landfill. Additional excavation greater than two feet in depth was performed until the soil cleanup goals (see page 30 of the 1989 ROD) were met. Sediments from the North Lagoon were removed to a depth equivalent to the low groundwater level. These sediments were trucked to the treatment area, stabilized using the VFL process and placed on the Industrial Landfill. Materials in the Blowdown Pit containing greater than 100 parts per million (ppm) of vinylidene chloride (VDC) were excavated and shipped to an off-site disposal facility. Remaining sludge and other contaminated materials and at least two feet of underlying soil were excavated, stabilized using the VFL process and placed on the Industrial Landfill. Post excavation sampling was then conducted to ensure that Soil Cleanup Goals have been met.

- **Industrial Landfill**

The Landfill was covered with excavated soils and then with stabilized materials from the lagoons and Blowdown Pit and then graded using excavated materials from the other waste disposal areas. The Landfill was then sealed/closed with an impermeable cap designed and constructed in accordance with Massachusetts Hazardous Waste Regulations for landfills specified at 310 CMR 30.580-595 and 30.620-633. The impermeable cap included a synthetic cover to prevent infiltration of surface water into the waste materials beneath the cap.

The cap was also constructed with vents through the Landfill cap to allow gases from the existing land filled material or newly placed material to vent to the surface outside the Landfill. Emissions from the Industrial Landfill was controlled utilizing the Best Available Control Technology (BACT).

Additionally, a groundwater monitoring and recovery system was designed and installed at the Industrial Landfill to supplement the existing Aquifer Restoration System recovery wells.

- **Battery Separator Chip Pile**

Originally, the battery separator chip pile was to be capped in place but the need to remove the underlying soils made in place capping non feasible. Therefore the battery separator chips were excavated and placed in the Industrial Landfill and were covered with non-solidified material excavated from the source areas.

- **Aquifer Restoration System**

Prior to implementation of the remediation work provided for in the ROD, W.R. Grace constructed an aquifer restoration system (ARS). This system began treating contaminated groundwater that was extracted from bedrock and overburden wells through an air stripping tower. The ARS began operation in March 1985 and continued treatment of the groundwater throughout OU-1 remedial action. The air stripping tower component of the ARS required

upgrading by installing carbon filters to control vapors and odors. The effectiveness of the ARS will be reevaluated as part of OU III.

The complete description of the selected remedy can be found in the ROD, dated September 29, 1989. A Remedial Action Report, dated September 28, 1997, for Operable Unit One was prepared by Foster Wheeler Environmental Corporation for the Site.

All of the above remedial actions activities have been completed and the contractor, Camp Dresser & McKee Inc. has certified that the remedy was constructed according to all approved plans and specifications, as documented in the Construction Quality Assurance Closeout Report, prepared by Camp Dresser & McKee Inc., dated September 1997.

1. Evaluation Of OU I

Post excavation sampling was performed after soil and sludge removal from the various disposal area on the Site. (See Figure 2) Excavation was deemed complete once the soil clean up goals were met for each disposal area. The clean up goals were established to reduce the level of contamination in the source area so that any further migration of contaminants into the groundwater will not exceed drinking water quality under the source area.

The Industrial Landfill was covered with the stabilized materials from the various disposal areas and then graded. The Landfill was sealed/closed, with an impermeable cap designed and constructed in accordance with Massachusetts Hazardous Waste Regulations for landfills specified at 310 CMR 30.580-595 and 30.620-633. The impermeable cap includes a synthetic cover to prevent infiltration of surface water into the waste materials beneath the cap. Access to the cap is limited by a chain link fence and no erosion was observed on the cap or graded areas within the fence. Also there is an adequate amount of vegetation cover on the cap.

B. Remedial Objectives For OU II

The 1989 ROD states the following: "OU Two would follow the excavation and post excavation analysis activities of this ROD if residual contamination in soils under a disposal area exceeds the soil cleanup goals of this ROD." After excavation activities under OU I were completed, additional sampling was performed to ensure that the soil cleanup goals were met. Due to the fact that the soil cleanup goals were met during the remedial action for OU I for each of the source areas, no additional remedy for OU II is necessary.

1. *Evaluation Of OU II*

The cleanup goals that were established in the 1989 ROD were met after remedial activities for OU I were completed. As a result, there was no need to implement OU II because there was no residual contamination in soils under the disposal areas that exceeded cleanup goals.

C. *Remedial Objectives For OU III*

Operable Unit Three (OU III) will evaluate the extent of groundwater contamination on and off-site and establish groundwater target cleanup levels for groundwater that has been contaminated from the Site. OU III will also determine whether additional remedial measures are necessary to restore the groundwater affected by the Site to a fully usable condition in the shortest practical time and to protect public health and the environment.

The third operable unit will also evaluate the current aquifer restoration system to determine if it is adequately containing and remediating the contaminated groundwater from the Site and Industrial Landfill.

1. *Evaluation Of OU III*

Currently the Potentially Responsible Parties (PRP's) are in the process of performing a Remedial Investigation/Feasibility study (RI/FS) for OU III.

III. RECOMMENDATIONS

It is anticipated that the RI/FS and ROD for OU III should be finalized and available for evaluation before the next five year review is due for the Site. It is recommended that this additional data/information be reviewed for the next five year review. Groundwater data from the Landfill and Site monitoring wells should also be reviewed.

IV. STATEMENT OF PROTECTIVENESS

I certify that the remedies selected for this site remain protective of human health and the environment.

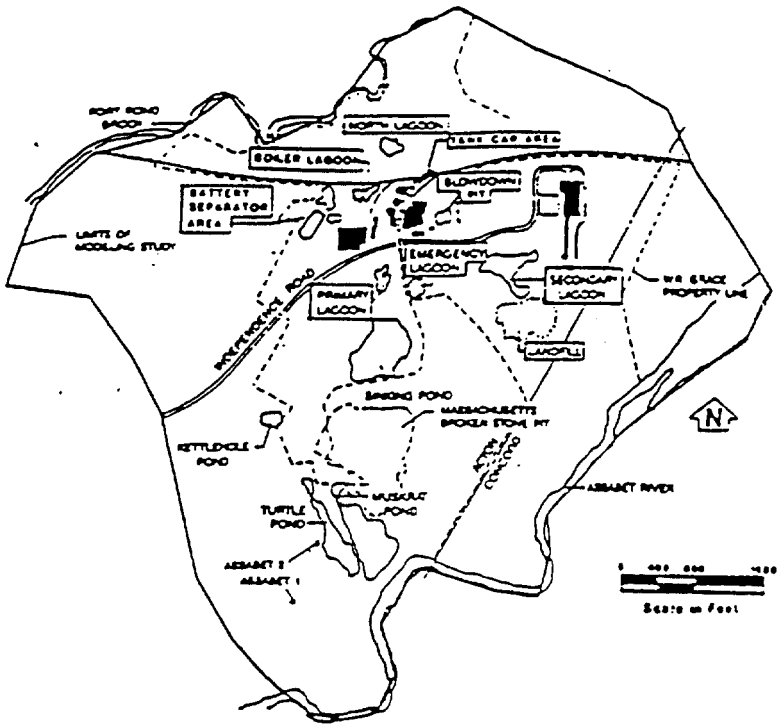
V. NEXT FIVE-YEAR REVIEW

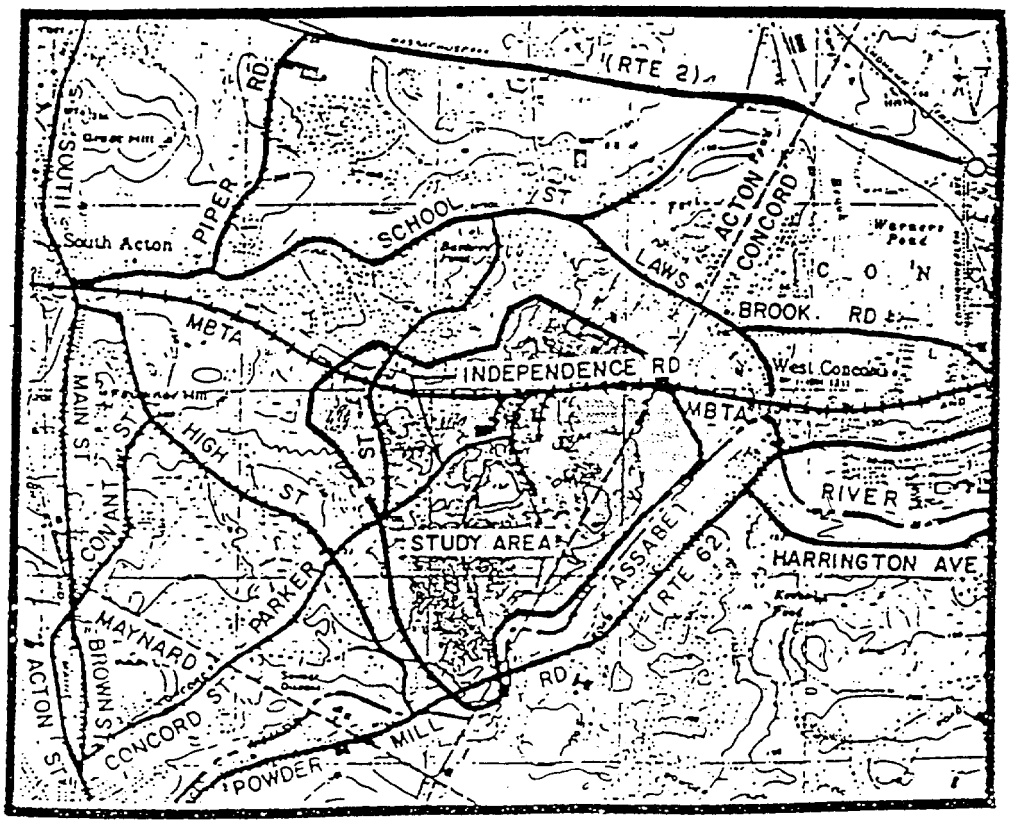
The next five-year review will be conducted in September, 2004.

Patricia Meaney, Director
Office of Site Remediation And Restoration

9/29/99
Date

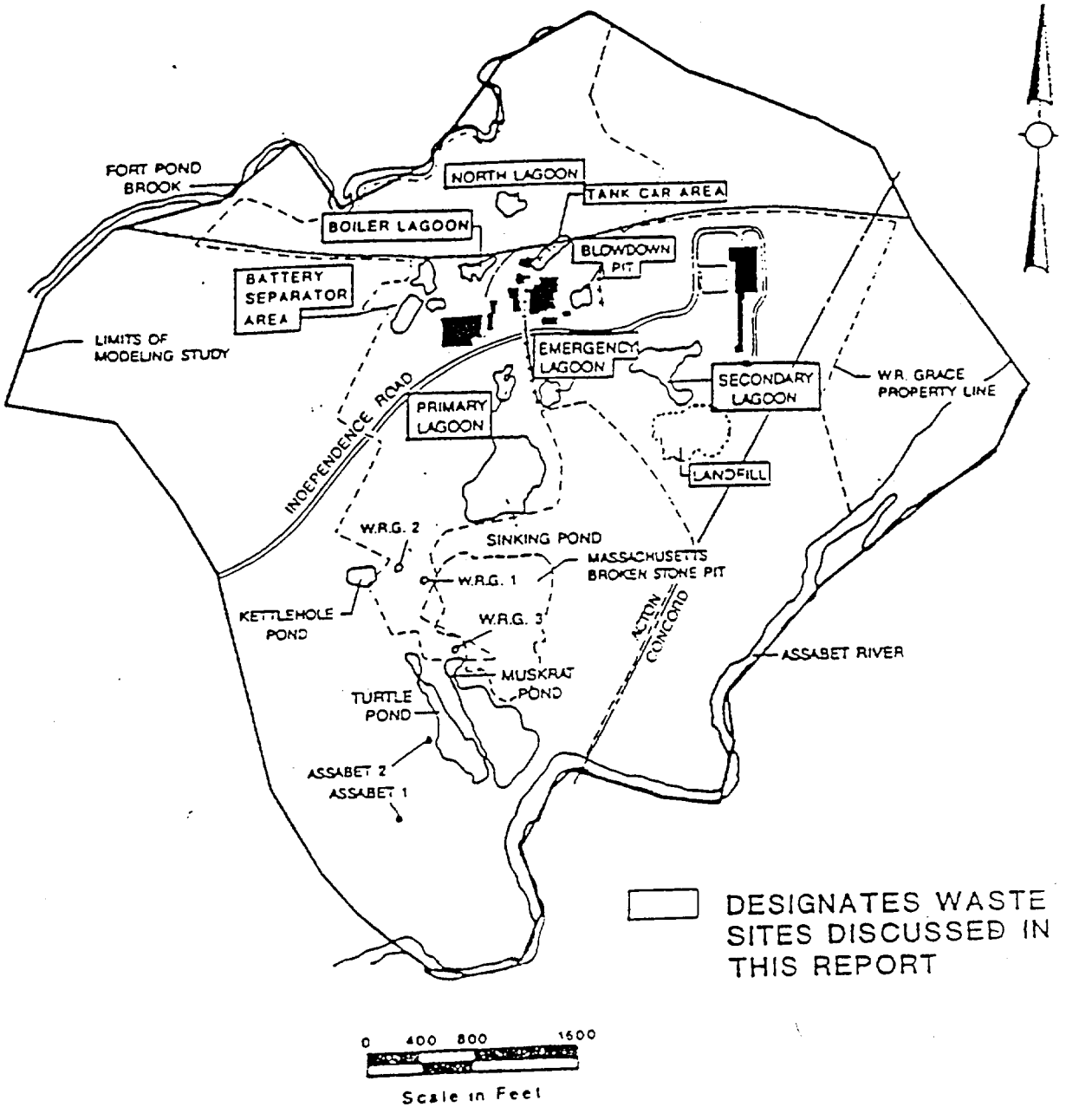
APPENDIX A





Source : Camp Dresser & McKee Inc.

W. R. GRACE & CO. Acton, Massachusetts	FIGURE 1 SITE MAP & LOCATION MAP



Source : Camp Dresser & McKee Inc.

W. R. GRACE & CO. Acton, Massachusetts	FIGURE 2 SITE MAP